PROCEEDINGS OF THE CLUB

January 26, 1910

The Club met at the Museum of the New York Botanical Garden at 3:30 P. M., with Vice-president Barnhart in the chair. Twenty-five persons were present. After the reading and approval of the minutes of January 11, the resignation of Dr. Cyrus A. King, 661 Flatbush Ave., Brooklyn was read and accepted.

The chairman of the field committee reported that 25 meetings were advertised during the season, of which 23 were held. The total attendance at these meetings for the year was 92.

The expenses incurred by the committee for printing and mailing the circulars has been considerable, and it was suggested that future notices which cannot be printed in the Academy Bulletin be printed in TORREYA.

Collections made for the Club herbarium aggregrated during the season 2,400 specimens; 1,750 of which were collected by the committee and about 500 specimens were secured by Mr. G. V. Nash in northwestern New Jersey and adjacent Pennsylvania. Material has been received also from other members.

The following committees of the Torrey Botanical Club were appointed by the president for the year 1910:

Finance Committee: Eugene P. Bicknell (chairman) and H. M. Richards.

Committee on Admission: J. K. Small (chairman), G. V. Nash, and C. C. Curtis.

Program Committee: Fred J. Seaver (chairman), Tracy E. Hazen, Jean Broadhurst, Charles L. Pollard, and E. G. Britton.

Field Committee: Norman Taylor (chairman), E. B. Southwick, and Wm. Mansfield.

Committee on Local Flora: N. L. Britton, chairman; Phanerogams—N. L. Britton, C. C. Curtis, Eugene P. Bicknell, K. K. Mackenzie, E. S. Burgess, and E. L. Morris; Cryptogams—Wm. A. Murrill, E. G. Britton, Tracy E. Hazen, M. A. Howe, and Philip Dowell.

Committee to consider the subject of revision of the by-laws: Edward S. Burgess, John Hendley Barnhart, Percy Wilson,

Marshall Avery Howe, William Mansfield, Jean Broadhurst, Philip Dowell, Alex. W. Evans, Tracy E. Hazen, William Alphonso Murrill, Charles Louis Pollard, Herbert M. Richards, Addison Brown, Fred J. Seaver, Norman Taylor, and N. L. Britton.

As a special committee for securing funds to provide speakers on the second Tuesday evening of each month: Jean Broadhurst (chairman), Tracy E. Hazen, and N. L. Britton.

A letter was read from Dr. Howard J. Banker of the department of biology, DePauw University, making application for one hundred and fifty dollars from the Esther Hermann Fund to aid him in his studies on Hydnaceae. Dr. Banker proposes to visit some of the European herbaria during the coming summer for the purpose of studying type material of this family.

This communication was approved and the secretary was instructed to forward it to the Council of the New York Academy of Sciences.

The scientific program consisted of two papers, of which the following are abstracts prepared by the speakers.

"The U. S. Experiment Station at Sitka, Alaska", by Miss Jean Broadhurst:

The visit to the Experiment Station at Sitka was made as a side trip when returning from the Hawaiian Islands to the United States, and afforded many striking contrasts fully summed up in the expression "from tree ferns to glaciers." Following the inland route from Seattle, the site of one of the most pleasing American expositions, we spent twelve days on the steamer Spokane, making stops at various points of interest: fishing villages; Kasaan, a deserted Indian town with its ghostly totems; an Indian mission settlement; Muir Glacier; the Treadwell gold mine, with the famous "Glory Hole"; Juneau, the governmental center and chief city; Skagway, which was our "farthest north" for the summer; and Sitka, which despite the rise of Juneau, still holds its own with its old Russian fort and the Greek church containing the famous Sitka Madonna.

The weather was real Alaskan weather, partly cloudy and mostly rainy. The short stops did not (after the special object

of the visit had been accomplished) allow trips to regions far from the beaten paths; at Skagway, *train* connections afforded a twenty-mile trip into the interior to the summit of the White Horse road; at Sitka, a walk to the Experiment Station, less than a mile from the town, revealed some interesting plants in the low ground traversed.

This station — like most of those in Alaska — is a simple unpretentious structure. Mr. Georgeson, the superintendent, lives in a large frame house near the wharf, and this house serves also as herbarium rooms and office; but the station consists of a small, frame house and two small greenhouses, with a few acres of cleared and cultivated ground. The station supports but one man beside Mr. Georgeson, Mr. De Armand, from the Kansas State Agricultural College. Labor is high — the poorest type of Indian demanding two dollars a day — and much of the actual work is therefore done by the officials, who elsewhere would be free to direct the work and plan new departures. The actual results, which at first seem disappointing, are lessened also by the great cost of preparing land — about $500 an acre; for, besides clearing and breaking new land, drainage and fertilizing are most expensive processes in the preparation of the ground. A record of 220 days with rain or snow to 95 clear days (the rest of the year being cloudy or partly cloudy) is not unusual for Sitka. This means a minimum rainfall of 80 or 90 inches a year, and gives a water-soaked soil that is difficult to plow or prepare early in the year, and too wet for most plants much of the growing season. The soil of this region — mostly volcanic ash — is poor in humus; seaweeds and fertilizers used so helpfully in other countries are of little benefit here, because they do not decay readily in the cool summers of Sitka. For, at Sitka, the greatest limitation is due, not to short summers but to the lack of heat during the growing season, the actual heat units of effective temperature (above 43° F.) being less than 1,500, while Ottawa has over 3,400 and Stockholm 2,700. The winters here are not severe; often, the ponds near the station do not freeze to allow skating. Frost along the coast may not be experienced from May 1 to October 1, or even November 1. The interior of

Alaska, with shorter warmer summers (frost sometimes in August) and colder winters (sometimes 70° below zero) boasts of fruits and grains that are impossible at Sitka. Grains often fail to mature, because the wet soil prevents timely planting; the stalks do not harden sufficiently to allow easy cutting, and the limp sodden growth is good for forage only. Potatoes never mature so the skin will not slip, and good results require that they be sprouted indoors and "set by hand with extra care." Apples ripen slowly (our fall apples do not mature at all there) and the native crab with cherry-like fruit is considered a necessary stock for grafting our less hardy varieties. The grafts "winter-kill", because the buds and the woody twig substances do not complete their development in the slow growth of the summer. To initiate the usual winter preparations the twigs are sometimes stripped of their leaves, a method which often proves successful. The native strawberries, which grow down to tide water, are being successfully crossed with cultivated varieties; and the red raspberry is forced indoors in the endeavor to secure successful hybrids with the large native salmon berry. Small plums, tiny cherries, little cranberries (chiefly *Vaccinium*), and currants are wild there. The introduced vegetables which are fairly successful are Brussels sprouts, cauliflower, kale, lettuce, parsley, onion, rhubarb, and peas. Beans do not do very well.

Kenai and Kadiak, two other government stations, are devoted chiefly to cattle-breeding and the improvement of cattle foods. Rampart and Copper Center are farther north, but farther inland; the winters are much more severe, but the shorter, warmer summers allow better results with grains and vegetables. Hay here is quoted at $200 a ton and retails at $0.20 a pound at the roadhouses.

The problems in Alaska are not the simplest in the world, and the workers there do not hope to make of it a garden spot or an agricultural center. If the investigators can add variety to the present limited food supply, or enable Alaska to become more nearly self-productive of the food required for man and his domesticated animals, they will more than justify the moderate government assistance now given them.

"The Culture Methods of Studying Plant Rusts", by Mr. F. D. Kern:

The first experiments in the culture of plant rusts were made by DeBary and Oersted in 1865. For a number of years after this many botanists were very skeptical. It was not an easy matter to believe that what had been considered separate and distinct genera of parasitic fungi could really be only different stages of one species. Through the work of a number of mycologists the study of rusts by means of cultures has been advanced with results that are now well known. The methods employed by the bacteriologist are familiar. He makes up artificial culture media of various sorts, and from a sowing of a certain kind of bacterium he obtains a crop of the same sort, if his culture is a successful one. With the rusts the story is quite a different one. They are strictly parasitic and living plants must take the place of culture media. The best success has been attained by carrying on the work under glass. Potted plants with vigorous roots and rather small tops are most desirable. The proof that different forms on unlike hosts are only stages of the same species is obtained by sowing spores taken from one host on another host and raising a crop of spores wholly unlike the ones sown. Take for example the rust of corn (*Zea Mays*). It has been found by means of cultures that the spores formed on the corn leaves in the fall cannot be made to grow upon corn again. One spring recently it was noticed that some sorrel (*Oxalis*) plants growing near a pile of rusted corn stalks were badly infected with rusts. From this observation in the field it was thought possible that the corn rusts might be associated with the *Oxalis* rust. Such proved to be the case. The spores taken from the corn will produce rust on the *Oxalis* and, vice versa. There is much need for further studies and observations of this sort. The cultures are best made in a greenhouse with plants that are grown in pots. Suggestions as to relationships must, however, be obtained in the field and there is an opportunity here for much valuable work.

The auditing committee reported that the books of the treasurer had been examined and were found to be correct.

PERCY WILSON, *Secretary*